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RAIL-ROAD NEWS.

Ventilation of Railroad Cars, &c.

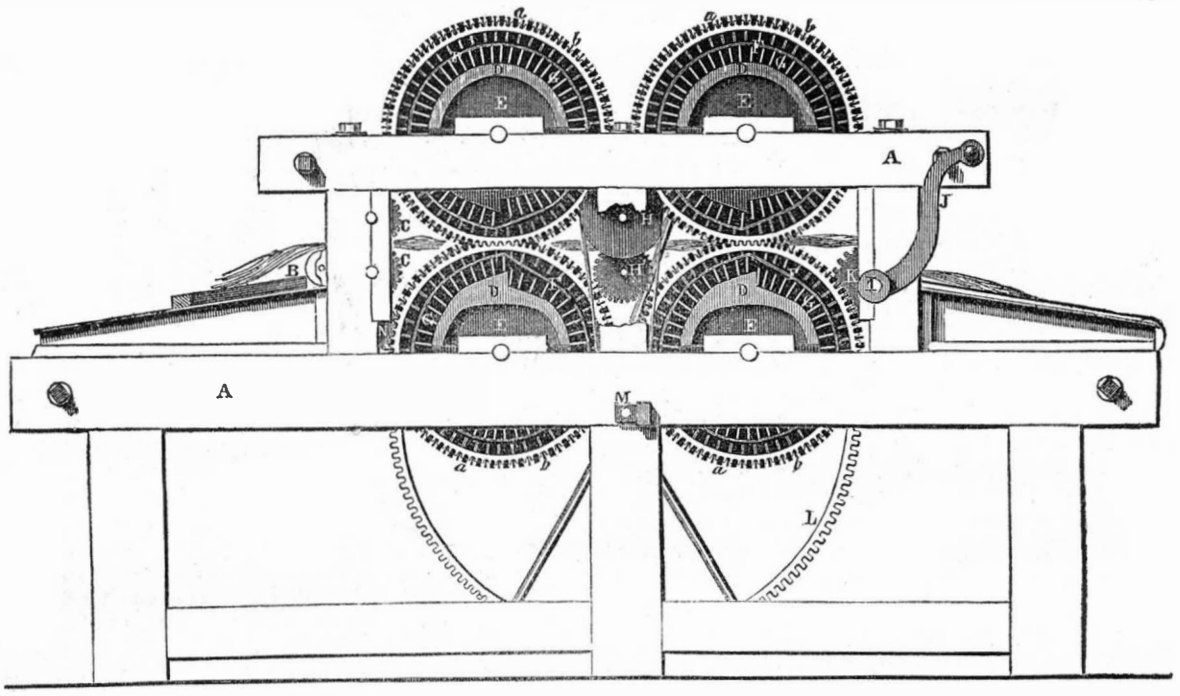
Although a great deal has been said upon the subject of ventilating railroad cars, and although a number of patents have been taken out, for the purpose of effecting this object, the evil, so far as the cars and their owners are concerned, is just as ugly and glaring as ever. There is not a single railroad connected with this city that is fit to travel on, so far as cleanliness and ventilation are embraced as objects of comfort. During the past month there has been a general drought, and the roads are no doubt dusty enough for that reason, but the same evils have always existed every summer, and always will exist unless a complete revolution is effected in some way or other. We do not care what plans are selected and adopted to get rid of the evil, only let them be no shams, but real complete remedies. It is really afflicting to ride on the Hudson River Railroad at present. The passengers, when they land in Chambers street, look as if they had been working all day in a plaster mill; their clothes are spoiled, and in every sense of the word they look as if they had been doing some dreadful penance. Every person who travels by the railroad, speaks of the want of comfort, the disagreeable dust, the abominable sparks, smoke, &c.; in short, in dry summer weather, people should travel as little as possible by railroad until the companies abate the nuisances of dust, sparks, and smoke.

We prefer the railroad for speed, punctuality, and uniformity of price, to the common trickery of steamboat companies, but there is no comparison between the pleasure of sailing in a steamboat and travelling in a railroad car. There appears also to be a great deal of carelessness and mismanagement on some of our railroads. There is a want of good and prompt action, or arrangement, or something else, for emergencies. Last week, a portion of the Hudson River Railroad was covered with a bank of sand, caused by a stream after a heavy shower flowing over it; one train from Albany was stopped on its way down, and the passengers had the miserable comfort of sitting on the rail during the night, owing to the blundering management of another train, which ran right across the track, and stuck there until it was driven off by two or three locomotives, which had to be brought into action for the purpose of pushing it into its proper place; such things should not be.

Hard Cement.

A cement which gradually indurates to a stony consistence may be made by mixing 20 parts of clean river sand, two of litharge, and one of quicklime into a thin putty with linseed oil. The quicklime may be replaced with litharge. When this cement is applied to mend broken pieces of stone, as steps of stairs, it acquires, after some time, a stony hardness. A similar composition has been applied to coat brick walls, under the name of mastic.

PATENT FLAX-DRESSING MACHINE.---Figure 1.



The accompanying engravings are views of a machine for dressing rough flax, hemp, and such like substances. It is the invention of L. S. Chicester, Mechanical Engineer, No 57 Chambers street, this city, (N. Y.) The patent for it was granted on the 3rd of February, 1852.

Flax is a substance which produces that beautiful fabric, linen, but the material as it is brought from the field looks as much like hay as a substance for making cloth. The parts which are useful, and which are employed for making thread, cords, rope and cloth, are contained in the outside of the stalks; the inside is a hard, woody, brittle matter. This has all to be removed, and the plans for doing this are various, troublesome, laborious, and consequently expensive. To produce a good flax dressing machine is very desirable. Our country can produce any amount of flax, but whether it is owing to bad machinery or not, we cannot tell, not a single yard of good linen has yet been manufactured in the United States. If we could make good and cheap linen, a great benefit would be conferred upon our people. This machine has been invented and constructed for the purpose of facilitating the flax manufacture, by an improvement in the breaking or separating the inside woody from the fibrous parts.

Figure 2.

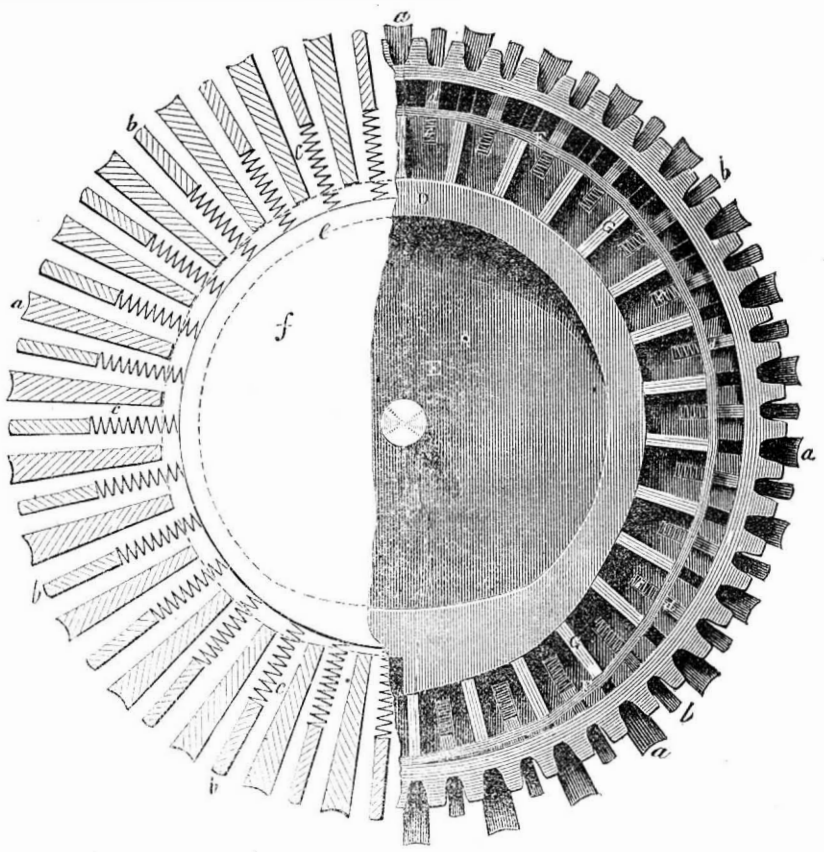


Figure 1 is a side elevation of the machine; and figure 2 is an enlarged view, partly in section of one of the cylinders so as to represent its principle of action clearly. The same letters of reference indicate like parts on both figures. The principle of the machine's action is a very simple one, and embraces a most excellent feature. It is well known that if we take a few threads of flax and hold them with the finger and thumb of both hands, at a small distance apart and give them a rubbing doubling up and down motion, we can break and rub off the woody parts from the fibrous of the flax, in a more perfect manner, and with less injury to the textile parts, that is, making less tow than by any other method. This machine is constructed to carry out and operate upon this principle of action.

A, fig. 1, is a strong frame made of wood or any other suitable material. B is the feed table, the rough flax being fed in under a roller; C C are likerin or fluted feed rollers; E E E E are dressing or breaking cylinders—the flax is made to undergo a double operation in this machine, and it can be increased indefinitely by the addition of like cylinders in the same machine. These cylinders are peculiarly constructed. The ends, E E, are iron flanges; the breaking bars, slats, or ribs, are made of metal and secured in the cylinders, but are free to act by pressure up and down. The ribs or slats, *a*, are pushed upwards, and the ones *b*—or pressure slats—are pushed downwards. Each cylinder is alike in construction. The ribs, *a* and *b*, are opposed to one another in opposite cylinders. The ribs, *a* are tied together at the outer ends by a band, F, of india rubber, to keep the shoulders of the bars to the cams and to make the machine operate without noise. The ribs, *b*, are secured by coiled springs, *c c*, in wooden flanges inside. The inside of each cylinder is hollow, as shown in figure 2. There are slots in the ends of the cylinders to allow the slats to work up and down. The outer ends of the ribs project below their acting edges on the cylinder.

D D D D, are iron cams made fast to the frame, A. These cams guide and direct the ribs or slats to make them act upon one another, and to act upon flax in the rubbing manner described. There is a projection on each cam of the upper cylinders, and also of the lower cylinders, set opposite one another; the notches in the lower cams are set a little in advance of the upper ones. As the cylinders revolve the cams, D D, act upon the shoulders, G G, and push the slats, *a*, against the spring pressure slats, *b*. As the flax is moved forward between the cylinders, it is rubbed and twisted or angled, between the slats with considerable pressure, and thus the pith or woody parts of the flax are broken and separated from the fibrous parts without tearing the fibres. The flax is carried from the first pair of cylinders between the central pair of feed rollers (one H' only seen) and then carried between the other pair of cylinders

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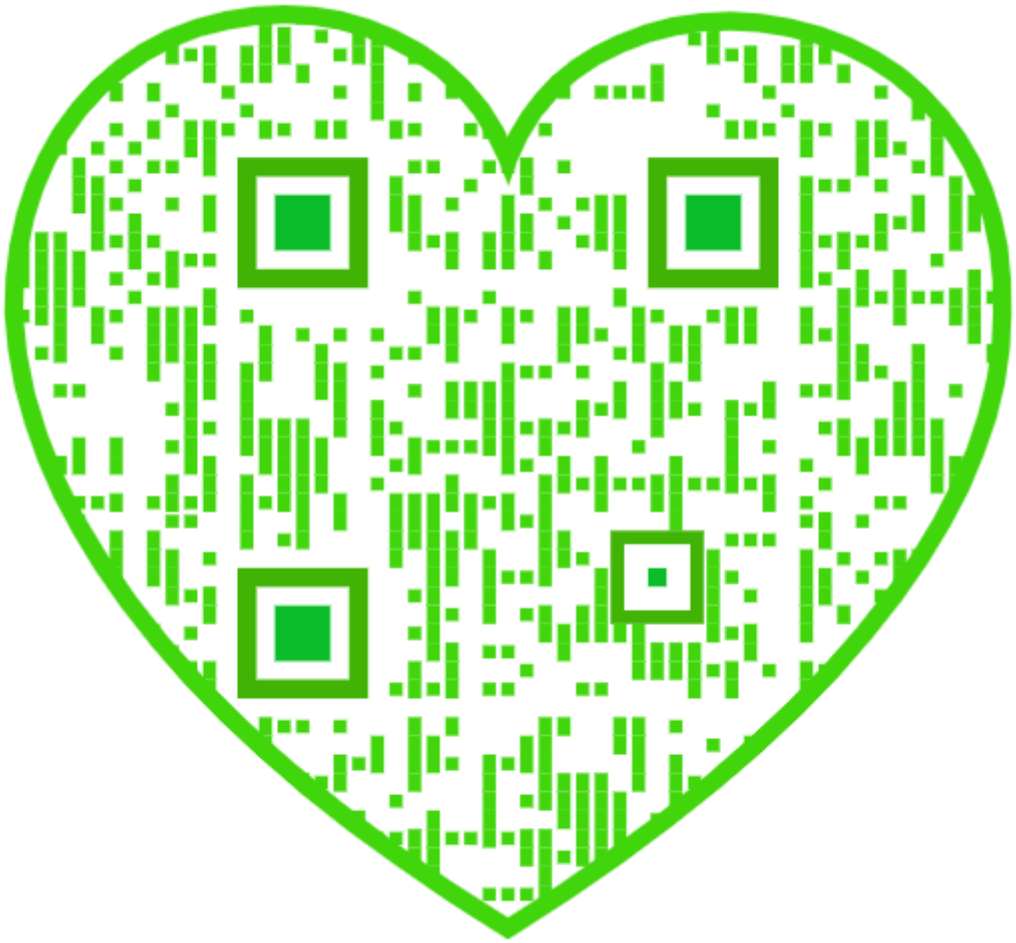

and acted on in the same manner, and is then discharged on the back table or endless apron.

Motion is given to the several parts of the machine as follows:—The crank lever has a shaft, I, which has a pinion, K, on it, on the opposite side. The pinion, K, meshes into the wheel, L, which has pinions not seen on its shaft, M, which mesh into the cogs on the ends of the lower cylinders. The end of each cylinder is formed with a cog rim, so that they all mesh together, and impart motion one to the other. The front feed rollers, C C, receive motion from the wheel, L, through the pinion, N. The centre feed rollers receive motion by bands passing over pulleys, H (one not seen), from a pulley on shaft, M.

By operating the crank lever, J, the way motion is communicated to all the parts of the machine will thus be rendered plain. The materials of which this machine is made are not expensive, nor are they of *fine*, *delicate*, and intricate workmanship; if they were, farmers and others might well object to it. It makes very little tow; and produces beautiful broken flax. It can be operated either by hand, horse, water, or steam power. We cannot say how much flax it can break in an hour or a day; that depends a great deal upon the way in which a machine is attended, and the power applied to operate it; it can at least break one ton per day. We have seen the machine operate, and it produced very excellent work.

More information may be obtained, by letter or otherwise, of Mr. Chicester, No. 57 Chambers street, this city.

MISCELLANEOUS.

To Make Hard Water Soft.

Washing.—Dr. Playfair, of England, asserts that the cost of washing is about one-twelfth of the income of a family of small means.—He enters into a computation based on one dozen shirts. Suppose the dozen to cost $18. If only two of them are washed each week at 6½ cents each, the bill for the year will be 6½ dollars; and in three years the washing will have cost more than the shirts. So that according to this computation a garment will have doubled its cost by washing by the time it is worn out, and some articles much more. Dr. P says for every 100 gallons of Thames water, 30 oz., of soap are entirely lost before the hardness of the water is overcome.—Prof. Dewey, in this country, has shown that by the use of unslacked lime, we may render hard water soft.

How to Soften Hard Water.—A half ounce of quick-lime dipped in nine quarts of water, and the clear solution put into a barrel of hard water, the whole will be soft water as it settles clear. This is a practicable and practical recipe or direction. But the precipitate will not be chalk, as the Scientific American states, unless the hardening substance is lime or chalk, which is seldom the case. Common hard water contains gypsum, as well as carbonate of lime or chalk, both of which will be removed by the solution of lime as above.—[Prof. Dewey.

[The above two paragraphs we copy from the same paper. It shows us how careless mere newspapers are about correct news. The reason of this is the general ignorance respecting such questions.

In the first paragraph above, it is stated Prof. Dewey discovered that *unslacked* lime renders hard water soft. In the second paragraph, Prof. Dewey gives credit to the Scientific American, which gives the proportions of *quick-lime*, for rendering hard water soft. The discovery was made by Mr Clark, an English chemist, and he has applied it extensively in the bleaching, printing, and dye-works in Machester, England. So far as the precipitate being chalk, we referred only to waters containing the carbonate of lime in solution, and not to those containing the sulphate of lime.

There is another method which we consider superior to the one described for precipitating lime and rendering hard water sott; it is by the use of salts of soda, which are sold by all the druggists. The way to employ it is to dissolve the soda in warm water, at the rate of one pound to 50 gallons of the water to be made soft, and stir this among the water to be purified, and then let it settle for five or six hours. For the domestic purpose of washing, this is the best way to use soda, the common plan is to mix the soda with the water in the wash tub, by which plan the precipitated lime, &c., (carbonates, chloriates, and sulphates) contained in the water are diffused through the clothes; by precipitating these substances and using only the clear soft water, these impurities are kept out of the wash tub.

To precipitate water that is greatly impregnated with the carbonate of lime, for drinking purposes, the quick or burned lime is the best substance to use.

New Galvanic Battery.

The following is an account of a new galvanic battery described in the London Athenaeum:—

"On the 24th ult., a party of scientific gentlemen were invited by Mr. Martyn Roberts, to witness a voltaic battery of new construction, and professedly of great economy, which he has at present in action in the neighborhood of Great Portland street. The battery consisted of fifty plates of tin about six inches by four,—each plate being adjusted between two plates of platinum of the same size.—These were placed in stone-ware cells about two feet deep, which were filled with diluted nitric acid. The object of these deep cells was, to obtain a marketable product which should be sufficiently valuable to cover the cost of the agents employed to effect the development of electricity. The upper stratum of nitric acid acts on the tin, and forms with that metal an oxide, which falls off from the plate the moment it is formed, and is precipitated as a hydrated oxide of tin to the bottom of the cell. This oxide is combined with soda; and as stannate of soda is extensively employed in dyeing and calico-printing; it is stated that this product will yield a profit of 20 per cent. on the cost of the battery but this is a point which we are not at present in a position to determine. The electrical action of the fifty pairs of plates was considerable. The current was employed to exhibit the electrical light, and the effects produced were certainly very brilliant. It was not possible to compare it with the result obtained from a Grove's battery, but we judge their powers to be nearly equal. An experiment made on the decomposition of water gave about 27 cubic inches of the mixed gases, oxygen and hydrogen, per minute. We cannot but regard this very ingenious arrangement as an improvement on the ordinary batteries, as far as economy is concerned, where an electric current is required, since the stannate formed must always be of considerable commercial value. It is curious, too, that the stratum of fluid in the immediate neighborhood of the voltaic plates is kept uniformly of the same specific gravity, notwithstanding that the acid is rapidly removed. The oxide of tin formed takes down water with it, and at the same time establishes a current by which fresh acid is applied to the plates. We were informed that the battery continued in most uniform action for sixteen hours."

A Yankee over the Crater.

A correspondent of the "Boston Transcript," writing from Naples thus describes an amazing interview with a live Yankee:—

"The other day, on reaching the top of Vesuvius, I discerned a man sitting astride of a block of lava. I don't know why, but I marked him at once for one of my country-men. As I advanced toward him I could not help noticing the cool manner in which he and Vesuvius were taking a smoke together. His long nine was run out like a bowsprit, and he took the whole affair as calmly as one would look at a kitchen fire at home. As soon as I came up with him he bawled out, 'Hallo, stranger! Any news from below! You aint tuckered out yet—be ye?' On my asking him if he had looked into the crater, he replied, 'Yaas! but I burned my trowsers, though, I tell *yew*.'

He turned out to be a man from New England, who came up from Marseilles to see the volcano.

Recent Erected Houses.

The London Medical Times directs attention to the circumstance of many diseases occcurring in consequence of newly built houses being too quickly inhablted. He says, that in various parts of the outskirts of London, a large number of new dwellings are constantly being erected, and scarcely are they completed before they are occupied. Five cases of cholera which proved fatal to persons who had recently taken newly built houses, came under his superintendence, which he considered were produced by the exhalations from the damp walls and floors and the fresh paint. We believe that newly built houses, when too quickly occupied, exert a very baneful influence on the health of the occupants. From the fresh materials which compose the dwellings, deleterious exhalations arise, contaminating the air. Houses ought not to be inhabited for a certain period after their completion; and our medical brethren should caution those within their influence, of the dangers to which families are exposed by living in houses recently erected.

Scientific Memoranda.

Dr. Krapf, and G. Robmann have received silver medals for the discovery of a new snowy mountain in Eastern Africa three degrees south of the equator.

A new respirator has been invented in England for the benefit of coal miners. It consists of a cylindrical vessel for puryfying the air; it contains caustic lye composed of lime and soda water.

Liebig is going to leave the University of Giessen, which has been rendered famous by his labors. He will take up his residence at Munich. He has written to a gentleman in London about the adulteration of pale ales with strychnine as a substitute for hops.—He denies the imputation of the poison in English ales, and says the English brewers are better than those of the continent of Europe. The employment of strychnine would at once be detected by its speedy ill effects, and the adulteration by such a drug would not be resorted to.

Mr. Mayal, in London, produces daguerreotypes of full life size.

McCosh, the author of the celebrated metaphysical work on the Divine Government, so well known in this country, was a candidate for the chair of Moral Philosophy, in Edinburgh University. He has withdrawn his name, and says he expects to find much pleasure in his situation in Belfast College.

Mr. J. R. Hind has discovered a planet which he describes as the fifth discovered during his systematic examination of the zodiacal heavens. He writes, under date of June 25, to the "Times:"

"At 12h. 30m. mean time, last night, I discovered a new planet on the border of the constellations Aquila and Serpens, about 5° east of the star Tau in Opinchus. It shines as a fine star of between the eighth and ninth magnitudes, and has a very steady yellow light. At moments it appeared to have a disc, but the night was not sufficiently favorable for high magnifiers. At 13h. 13m. 16s. mean time, its right ascension was 18h. 11m. 58·8s., and its north polar distance 98° 16′ 0·9″.—The diurnal motiou in R. A. is about 1m. 2s. towards the west, and in N. P. D. two or three minutes towards the south."

A French gentleman states that he has been enabled to prevent incrustations in steam boilers by placing 2 lbs. of the proto-chloride of tin daily in a boiler which works 12 hours per day, at a pressure of the atmosphere, and evaporating 1,500 quarts of water.

The best solvent of india rubber is a mixture of 100 parts of the sulphuret of carbon with 6-8 parts of alcohol free from water. The india rubber liquifies rapidly, producing a clear solution which may be precipitated again by the addition of twice its bulk of alcohol. The precipitate treated with a fresh quantity of sulphuret of carbon re-dissolves, yielding a purer solution. India rubber paste is obtained by feeding 95 parts of sulphuret of carbon with five parts by measure of common alcohol. The india rubber is steeped in this until it becomes a paste. India rubber threads can be stretched six times their length when cold, and double that when heated to 212°.

Home Sweet Home.

We see it stated in a great number of our exchanges that John Howard Payne, who recently died at Tunis, Africa, was the author of the beautiful song, Home Sweet Home.—Why the song was old a hundred years before he was born.

Fire-cracker Nuisance.

The Fourth of July is signalized by more intolerable nuisances to sensible people than any other day in the whole year. Crackers, pistols, cannons, &c., are employed that on day for the independent action of all those who have not sense enough to know how to use them in decency. All quiet persons flee the city that day as they would a plague. It is high time that parents were becoming more sensible in the teaching of their children how to keep Independence Day, and it is high time for all grown up people to throw off their children's clothes on that day as well as on other days. Let Independence Day be celebrated in a sensible manner, and not in the absurd, foolish, and noisy manner in which it is usually kept.

(For the Scientific American.)

Iron Structures---Oriental Style.

In your excellent paper, which I read very regularly, in our office here, I find an article on "Iron Structures,"—you express surprise that the valuable improvements of Mr. Bogardus are so little appreciated. I think you might suggest a change of construction in connection with the use of iron, which, if not suitable to New York (though I doubt that), might be well suited to the "Sunny South." Coolnes is to be obtained most readily by shade, and by abundance of water. Why not build houses after the Eastern fashion, but higher, one room deep round a court or small garden, with galleries to each floor, of iron? A fountain or two should decorate the centre, with water ever flowing, and jets, at the sides and corners. For the richer classes, delicious residences might be thus constructed, light and graceful in architecture, cool and refreshing in the hot season, and fragrant with the choicest flowers and shrubs; while vases and statuary might show their graceful proportions by the orange and the lemon, and prove the taste and discrimination of the owner. Balls and fetes in such residences would be everything that one could desire. I do not see that in such structures we need cling to the Grecian or Roman in architecture—an ample field for the ingenuity of American architects would be open, and the architectural riches of the East would furnish an almost inexhaustible store of light and graceful designs. C. L. A.

Washington, D. C.

Lepidopterous Insects.

The pine forests of Germany are exposed to the ravages of various lepidopterous insects, such as *smerinthus pinastel*, and in particular *gastropacha pini*. Now, a pine tree once stripped of its leaves, or needles, as the Germans term them, does not recover like an oak or sycamore, but dies. Many hundred acres of the finest are thus often destroyed in one district. It is an interesting sight to any but the owner, to visit a forest under the infliction of *gastropacha pini*; the thousands of caterpillars, eagerly feeding, produce a distinct crackling sound as the hard dry pine leaves yield to their persevering jaws. The large moths fluttering lazily about, or perched on the leafless sprigs, await the approach of evening, when the gamekeeper kindles large fires in the open spaces. Into these multitudes of the moths fall and are consumed; but this, with all that are destroyed by hand or devoured by birds, would avail but little, but for the services of various insects. Among these the Calosoma is one of the most active; both larvæ and beetle mount the trees, and slaughter moths and caterpillars far more than is requisite to satisfy their appetite.—Those seasons in which the pine moth is most numerous are also remarkably favorable to the calosoma, and to several kinds of Ichneumons, which also prey upon the Gastropacha.—[Jones' Natural History of Animals

Erratum.

In our notice of the pneumatic method of blasting rocks in our last number, it should have stated that the vitriol is to be placed only at each cell; the pressing of the air bag deposits the acid on the charges.

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On Plastering.

The modes of rendering the insides of dwellings vary in different countries with the materials most commonly found. Wherever the sulphate of lime occurs in large quantities, it is the material exclusively employed; when it becomes too dear, a combination of lime with sundry other materials is substituted for it; or cement, either natural or artificial, is used.

The sulphate of lime is met with in large formations known under the commercial name of gypsum.

The sulphate of lime is insipid, or of a slightly bitter flavor; it is colorless and indecomposable by heat. It is soluble in water, whether hot or cold, 1,000 parts of water at any temperature between 10° and 100° of the centigrade scale dissolving 3 parts of plaster. Its specific gravity is 2·31; it contains in its natural state 20·9 per cent. of water of crystallization, which is given off at a temperature less than 200° of the centigrade scale (392° Fah.)

The gypsum from the best quarries is nearly as hard as the calcareous stones; after its water of crystallization is driven off, it becomes pulverulent and like flour. If fresh water be presented to it in this state, it combines with the normal quantity of water, and re-assumes the form of a hydrate, which it had lost by the burning, crystallizing around the materials presented to it, and recovering its original density and strength to a very great degree. It is this property which has led to its use in buildings; when the plaster is burnt it is dishydrated; when gauged, or worked up, the precise quantity of water it had lost is restored to it.

After the calcination, the plaster is reduced to powder, either by hand or in a mill; in this state it absorbs the humidity of the atmosphere with avidity, and requires to be covered up very carefully, to secure it from contact therewith, directly it is crushed. There is also, from this reason, a very great objection to transporting the plaster in its manufactured state for any great distance.

Plaster is far from having the tenacity of mortar, which, as it is well known, increases with time. Rondelet found that if two bricks were joined together with this material, they united with one-third more force in the commencement than if they had been joined with lime; but that they subsequently lost their force of adherence. A very useful application of plaster was made by Smeaton in the construction of the Eddystone Lighthouse, where he covered the fresh cement joints with it, to give them the time necessary to harden.

In France it is largely used for the construction of walls, both internal and external, as well as for "rendering" them afterwards. If proper precautions be taken to cover the surfaces exposed to the weather, and if it be painted as soon as dry, the plaster is eminently useful in such positions; and replaces very advantageously the natural cements for all common purposes. But it is utterly incapable of resisting the action of water.

The coarser kinds of plaster are used for the ordinary works, such as the "rendering" of walls and partitions; the finer qualities are reserved for the ceilings, cornices, and other decorative works. A difference is to be observed in the quantity of water to be mixed, according to the position and nature of the work to be executed. Thus, for walls, the plaster must be gauged stiff for the first coats, and more fluid for the setting coat. For cornices worked out in the solid, the core is made of stiffly gauged plaster, which is floated with finer material, and lastly finished off with plaster laid on by hand about the consistence of cream. Practice only can ascertain the precise degree of stiffness to be given, especially as every burning yields a different quality.

When walls are to be rendered in plaster, they require to be first jointed, and then wetted with a broom. The surface is then covered with a coat of thinly-gauged stuff laid on with a broom, or at least worked with the trowel in such a manner as to leave sufficient hold for the next coat.—This is gauged stiff, and is laid on with the trowel; it is floated with a rule, but the face is finished with a hand trowel. Owing to this, and to the fact that the plaster sets too rapidly to allow any pains being taken with the floating, the surfaces are never so even, nor the angles so square and true as with our common system. But this mathematical nicety is not really of importance in ordinary works, whilst the rapidity with which the plaster dries constitutes a real and very important recommendation in its favor.

The partitions in Paris are generally made solid, so as to prevent sound from passing through them. They are executed with quarters of oak or pine, according to the nature of the building. Upon the quarters laths are nailed every 4 in. apart, and the interior is filled in with plaster rubble. This is made even and flush with the laths, and the whole is then rendered like any ordinary wall.

The ceilings are sometimes executed with close laths, but the usual plan is to nail them about 3 to 3½ in. from centre to centre. A sort of flat centreing is put under them, and what are called "augets" are then formed between in plaster, which finish about flush with the under side of the laths, and return up the joists to nearly their total height, forming a sort of channel, which the workmen often finish by drawing a bottle along the sides.—The thickness in this case should be about 1 inch; the ceiling itself is added underneath; the floors are either of wood, or tiles upon a bed of plaster formed above the joists. The better description of such floors or ceilings are often made, however, with laths spaced 4′ from centre to centre; the space between ceiling and floor is then filled up with light plaster rubble, and the upper and under surfaces are rendered to receive the ceiling and the tiles. Ceilings executed in either of these two last-named manners, cost 1½ time those executed either with laths or flat "augets."

In countries like our own, where the price of plaster is very high, it is replaced by the use of a mixture of lime and sand, to which cows' or calves' hair is added. The mixture is then applied upon close lathing for ceilings or partitions, and in the usual manner upon walls.

The lime generally used for this purpose is the white lime, which is slacked with a great deal of water, and runs from an upper basin to a lower one, where the excess of water is allowed to evaporate. A grating should be placed at the entry of the passage between the two basins, to keep back the core, or any unslacked particles the upper one might contain. The lime run in this manner is made into a mortar with a very fine sand; and the hair is then added. For the first coats coarse hair will be most desirable; for the finishing coat it should be finer.

In well-finished works two coats are given, which are distinguished by the names of "rendering" and "floating." A third coat is then added called the setting coat, which is made of the pure lime as it is run from the basin. Ceilings are afterwards covered with a very light coat of plaster, gauged thin, and laid on with a trowel. Such plastering is very cheap; and if proper attention be paid to its execution so as to avoid blisters from the use of unslacked lime; to fill the cracks which frequently take place in the thicker coats, from the unequal contraction of the lime in setting; and to allow a proper interval for the whole plastering to dry before the painting, or subsequent decoration to be added, is applied; the lime and hair may be safely admitted as a substitute for the natural plaster. The superior rapidity with which the latter dries, the much superior manner in which it takes color, and the degree of hardness it attains, will, however, secure it the preference, unless very weighty considerations of economy oppose its employment.

Consumption.

Two or three years ago, experiments were made by members of the Londoh Faculty Physicians, in different Hospitals, for the cure of diseases of the lungs, by breathing in warm medicated vapors. The success of the experiments were so gratifying that an institution, the Brompton Hospital, for the cure of bronchitis and consumption, was immediately established, and so favorable has been the result of the treatment, that the number of patients admitted during the past year is between two and three thousand, and the Hospital Report shows that full seventy-five in every hundred have been completely cured.

Ship Navigation to Albany.

A project is on foot to secure a sufficient depth of water between this city and Hudson to enable the largest class ships and steamers to reach our docks. This may be effected by building a ship canal to New Baltimore (on either side of the Hudson) or by deepening the channel of the river. Either plan is feasible. The latter would probably be the most acceptable, although a canal would be of equal practical utility.

Measures are being taken to secure early surveys. A subscription book to procure the necessary funds is now in circulation, and more than half the amount required is already subscribed. There should be no delay in filling up the amount.

No enterprize more important to the city than this has ever been projected. Albany is the great outlet between the illimitable West and the Atlantic border. The products of all the most prolific States in the Union, concentrate at this point. But, with trifling exceptions, they move forward to New York for trans-shipment to foreign and coastwise markets, doing but little toward promoting the interests or augmenting the population of Albany.

If, however, ocean vessels could reach our docks, Albany would become the point of trans-shipment, because now nearly as much is lost in cartage, storage, and commissions in New York as would cover the freight to Liverpool direct from this city. The same is true of importations. Millions every year could be saved to both producer and consumer, and Albany be made a great mart of foreign as well as home commerce.

It is unnecessary to point out the advantages which would accrue to the city from such a revolution. They must be self-evident to every intelligent mind; and our only surprise is that a project so entirely feasible, involving such magnificent results, should not sooner have attracted the attention and enlisted the energies of our people. But "better late than never." We cannot recall the past, but we can improve the present; and we trust that our business men may promptly fill up the subscription for the contemplated surveys, and push forward the project so that Albany may become what nature has ordained—the meeting point of the products of the old world and new, and the place of trans-shipment for both.—[Albany Evening Journal.

[Albany is not ordained by nature for a great shipping port. It is too far inland.—Would ships go up to Albany doubling and winding all the points for 150 miles up the North River? No. The man who would attempt to make a canal on either side of the Hudson from Albany to New Baltimore, we would set down as a person fit to be sent to the asylum at Utica. There is as much water flowing in the Hudson at Albany every day, as would float a seventy-four. The channel of the river has only to be deepened, and made narrower, so as to direct the water therein, thus giving it a greater velocity, which will assist to keep it clear. It is our opinion if the river were deepened that the trade of Albany might support two propellers of 1,600 tons burden, to run between that city and Liverpool. They would make about three trips per year each way, for they could not go to Albany during three months in winter. The Evening Journal forgot this when it made the remark about "nature ordaining it as the meeting point of the products of the Old World and the New." Mr. McAlpine, the State Engineer, knows how the Hudson can be deepened—the way by which the river Clyde was made from a small river like the Mohawk, into a river which sends ships of 1,800 tons to New York, must be well known to him, as they have been published in the Engineers' Magazine: blasting, dredging, and banking were the plans. The citizens of Albany may have some ocean commerce if they would really go to work in earnest and perform what they now propose, as set forth above. They will find it a much more beneficial project for the city than making a tunnel under the Hudson (after the unwise example of the London tunnel) to carry merchandise, not from, but past the city. The people must not overlook one fact in all their schemes, their city has no natural resources to make it great; it is barren of coals and minerals; its citizens must be cautious and not over speculative about its future commercial prospects.

Signal Lights for Railroads, and Stopping of Trains.

After a few remarks about the Marine Signal of Thomas H. Dodge, of N. H., illustrated, three weeks ago, in the Scientific American, our correspondent, Chas. McKean, presents the following suggestions, which, in our opinion, are good and well worthy of the attention of our railroad companies:—

"A better signal for the kind of switches used on our road, would be a square lantern placed on the top of the switch pole that carries the day signal; this pole is about ten feet high, and has a crank at the bottom, and a hand wheel for turning it, and to effect a change in the position of the switch—the pole with the crank is turned half way round. the square lantern at the top of the pole having two red and two white lights opposite each other, would show the same signal both ways on the line of road, and would not be subject to the expense or derangement of the cord pulley and box system.

Another thing I would like to mention before closing, is, stopping of railway trains in cases of danger. An advertisement appeared in your paper, not long since, from a person connected with the American Institute, offering a reward for some effectual plan to accomplish that very desirable object. I have seen many schemes for that purpose, such as attaching brakes to locomotives, &c., but none in actual or successful operation. Our double brakes are so powerful that they almost take the rails along with the train, and there is not much chance for improvement in that quarter. I have noticed the effect that a little sand left on the rails by the repairer has produced on a train of cars, causing them to drag heavily through it; and I have thought that sand boxes might be placed under the platform of cars and worked similar to those used on locomotives to prevent their slipping (it will also aid materially in stopping one); these boxes could be operated by the brakemen by means of levers placed within their reach: and in cases of emergency, a stream of sand could be poured on both rails in front of each car, as well as the engine, which any one acquainted with the subject can easily see would do much towards stopping a train. I would recommend this idea to the person referred to (not with expectation of gain, however).

CHAS. M'K., Engineer.

New Haven, Conn., June 28, 1852.

Telegraph and Steam.

On the 8th day of June, an auctioneer in this city, sent on by telegraph to Philadelphia an order to a manufacturer for about $1,000 of goods, of a particular description to suit a certain phase of the market here. The manufacturer received the despatch the same day, the goods were sent to New York that afternoon, and placed on the steamship Empire City, which left for this port on the 9th instant. She arrived here but Saturday morning the 19th instant: the goods were delivered up and sold at a satisfactory price, and yesterday morning the proceeds, in the shape of a draft, were despatched by mail to the manufacturer. Rather quick work all round.—[New Orleans Picayune.

[This is what our inventors are doing for the world.

Neatness in Holland.

If cleanliness can ever be carried to excess, it is in Holland. The very servants have such caps and kerchiefs, and aprons and laces, and so beautifully got up. I can compare it to nothing but a laundress on a pleasure party, taking a day's wear of her mistress's best things. Of course, they have a wash, every week day, besides the grand one on Saturday, when they really wash up everything in the place except the water. As an instance of the particularity, at almost every house there is a sort of double looking glass outside the window as if for seeing up and down the street, that the Dutch ladies may watch a friend to see whether he has dirty boots or shoes.—[Exch.

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NEW INVENTIONS.

Improved Seed Planter.

Charles W. Billings, of South Deerfield, Franklin Co., Mass., has taken measures to secure a patent for an improvement in Seed Planters. He employs a rotating hopper or hoppers attached to a seed planter, and constructed and arranged in such a manner that another kind of seed may be dropped from the rotating hopper or hoppers, at greater intervals, while the corn is being planted in hills in the usual way. Corn is ordinarily planted in hills about three feet distant, and pumpkin seed is deposited at about every fourth hill. This machine deposits the corn in the usual manner, and at the same time it deposits the pumpkin seeds in the hills at the required distances by means of the revolving hoppers. There is an adjustable share attached to the machine, the point of which may be elevated or depressed, and consequently it can open a deep or shallow furrow, as may be required for different kinds of seed.

Striking Action of Pianofortes.

R. E. Letton, of Quincy, Ill., has taken measures to secure patent for an improvement in the striking action of pianofortes. One part relates to a stop attached to each key for the purpose of arresting the hammer in its descent, after it has struck the string, and while the key is still retained. The object of this stop is to enable the player to produce a very rapid succession of strokes with the same key. There is also a notch formed in the hammer butt, to receive the point of the key lever when the hammer falls back to the aforesaid stop.

Spindles for Mill Stones.

G. W. Mitchell, of Nashville, Tenn., has taken measures to secure a patent for an improvement in adjusting mill stone spindles, which consist in arranging spindles in mill stones whereby the bushing of the spindle in the eye of the stone is dispensed with. The improvement allows of the supplying of the spindle, at the eye of the stone, with lubricating material at all times, which cannot be done but at certain intervals in the spindles of mill stones, as they are commonly arranged and set.

Improvement in Filing and Gumming Saws.

H. O. Elmer, of Mexico, Oswego Co., N. Y., has taken measures to secure a patent for an improvement in machines for filing, gumming, and setting saws. He employs a cylindrical cutter, having a rotary motion, and which is placed in a frame having a reciprocating rectilinear motion, and in combination with the cutter and frame there is a jointed bed, in which the saw is placed to be operated upon. Both the under and inclined faces of the teeth of the saw are filed perfectly true, and then gummed and set in the proper manner, with great rapidity.

Smut Machine.

D. Pease, Jr., of Floyd, Oneida Co., N. Y., has taken measures to secure a patent for an improvement in Smut Machines, which consists in spreading the grain in a superior manner to other smut machines, and regulating the spread of the grain by an adjustable top, so as to allow of the machine acting upon the grain in a very superior manner.

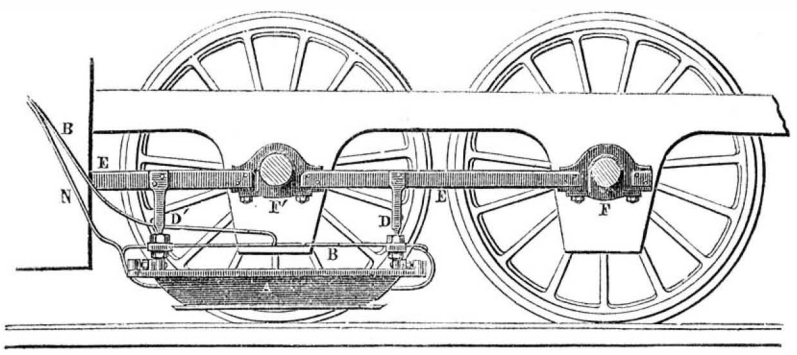
Music by the Magnetic Telegraph.

We find in the Jersey City Advertiser the following notice of an improvement in the musical art, by Mr. Levi Wilder, of that city:

"This machine's utility consists in being the medium through which any person—especially those acquainted with the piano, melodeon, and other instruments constructed on this principle—may have their inspirations written down by touching keys arranged as they are on a piano. The whole affair occupies about one square foot of space. On the back part, machinery of the form and principle of the magnetic telegraph, is completely arranged, and carried or set in motion by a weight similar to that of a clock. On the front part, keys are arranged precisely as they are on a piano or melodeon, and connected with balancing machinery to the telegraphic apparatus. Put the machinery in operation the same as you would a clock, and the telegraphic paper moves as on a magnetic telegraph machine. Then touch the notes, or play the tune as the soul dictates, and each key you touch, and the length of time you keep your finger upon it, are marked upon the paper—thus giving you the notes of your inspirations, and enabling you to write your tune without any difficulty whatever. In connection with the wire points which mark notes on the paper, are bar points, carried by the same machinery. This is so arranged with an indented wheel that when you make the bar in your music, it falls and leaves an impression agreeably to the notes you touch, to suit your music. The whole affair is an ingenious contrivance, and we believe could be brought into universal use with the expenditure of a little money."

[This invention will therefore be claimed by two different persons at once.

ELECTRO-MAGNETISM TO GIVE ADHESION TO THE WHEELS OF LOCOMOTIVES.---Fig. 1.



This, invention, to give adhesion to the driving wheels of locomotives, has recently been patented in France by MM. Amberger and Cassal, and is now in the course of experiment on the Lyons Railroad. The following account of its nature, with the illustrations, has been translated for the Scientific American from the "Genie Industriel:"

Figure 1 is a side elevation, in which is shown a portion of the tender of the locomotive, to which the invention is applied. Fig. 2 is a hollow electro-magnetic box, A, placed around the under side of each driving wheel. This box is made of brass, and encloses what may be called an electro-magnetic bobbin; it contains a number of windings of copper wire, and forms a hollow electro-magnet. It communicates with the battery (which is placed behind the tender) by the wires, B N. A similar arrangement is placed upon both driving wheels, each wheel being surrounded and running through the hollow magnet, as shown in fig. 1. E E is a strong bar, and D D′ are the two supports to which the hollow electro-magnetic box, A, is secured. F F′ are the two oil boxes of the wheels. The box, A, can be raised and lowered by screws, so as to keep it at the required height above the track. In front of the tender, and within the reach of the engineer, there is arranged and secured the key, H, fig. 3; this key is for breaking and closing the galvanic circuit, to set the electric current in motion and to stop it, as may be required. This key is connected with the wire or wires which form the circuit. In turning the key from right to left, the effect is to raise the spring, I, attached to which is a small piece of wood containing a metal plate, with which one of the wires is connected; by this movement the current is broken, as the piece of wood is a non-conductor. By reversing the movement the circuit is closed, and the magnetic current is again established. Wooden boxes, lined with gutta percha, are placed behind the tender; each box is divided into eight compartments, which communicate with another by means of an india rubber tube, which enclose the materials necessary to produce the galvanism.

Figure 2.

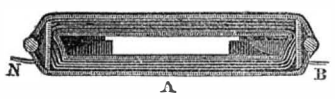
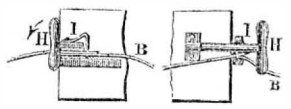


Figure 3.



To give the driving wheels adhesion (according to the inventors), when the locomotive is desired to ascend an inclined plane, the engineer merely turns the key, H, and by that means the driving wheels are magnetized and the adhesion affected.

This is an invention upon the same principle proposed, as was stated in the New York Tribune some time ago, to be applied on some of our railroads. This arrangement is certainly much superior to the one mentioned, which we took occasion to make a few remarks about. We cannot see how this principle can effect the object contemplated by the inventors. If the hollow electro-magnets attract the wheels around which they are placed, a useful adhesive effect can only be produced by rendering the tread of the wheels and the rails magnetic, so as to promote a surface attraction. Now will this be done by this arrangement and application of electro-magnetism? The editor of the "Genie Industriel" hopes the experiment will be successful, as large sums of money have been expended upon them. The attractive power of electro-magnets is very well understood, and we cannot see any advantage to be gained by this attachment, and we believe there will not be any. As this is a subject of some importance to our railroads, we would be glad if the experiments should prove successful. We shall endeavor to obtain an early account of them, for the benefit of our readers, in the meantime the invention is here clearly set before our people.

Deafness and Blindness.

At the recent meeting of the New York State Medical Society, held in this city on the last days of last month, Dr. Peet, of the New York Deaf and Dumb Asylum, read a most interesting paper on the diseases under his charge. With respect to the number of deaf and dumb persons in different countries, Dr. Peet said, that it bears a pretty certain ratio to the population in all countries and at different periods, being from 350 to 800 to 1,000,000 of inhabitants. In some parts of Switzerland, however, there is one deaf mute to every 400 inhabitants, being connected with cretinism. In Baden there is 1 to 500. In other parts of the continent, and this country, there is about 1 to every 1,000 or 1,900. There are at least 1,000,000 deaf-mutes on the face of the globe. We know but little with regard to the number of deaf-mutes on the Eastern Continent, but there is reason to believe the proportion is about the same as elsewhere. Climate has considerable influence in the production of this infirmity, as well as hereditary tendency. Deafness has been transmitted through three generations. The recent census returns in the United States show that among the free blacks there is a smaller proportion of deaf-mutes than among the whites, while the opposite is true with regard to blindness. The ratio is about 1 to every 1,900 inhabitants, taking the State together, though the ratio varies in some sections.—But as the paper will soon be published, we forbear further extracts. It was regarded by the Society as the most valuable contribution on this subject yet given to the world, and measures were taken to have a large pamphlet edition published and circulated.

Syracuse Salt.

In the "Syracuse Star" of the 2nd inst., a correspondent signing himself *Philo*, in a letter from Washington, dated June 27th, criticises the remarks we made on page 301, Scientific American, respecting the improvements which had been made in the manufacture of salt by Mr. Howd. He says:—

"It will be news to the Salt Pointers, that no pure salt was made until Howd's works were erected. It has been supposed that by solar evaporation as pure an article of salt could be made as any in the world; and it has been supposed that as pure an article could be made by boiling, as was ever manufactured in Howd's works. If any one will take the analysis made by Prof. Cook, they will see that his salt is no better than the common boiled, nor is it as good for packing purposes, for the reason that it is lighter than any other salt made. It dissolves quicker than any other salt. The crystals are less solid; and although the crystals may be as white as 'driven snow,' it does not contain anything like the amount of pure chloride of sodium per bushel as the solar evaporated or boiled.—The age of humbug in salt has passed, and people begin to know what salt is without the aid of any newspaper puffs in 'Scientific Journals,' the editors of which know nothing of the subject upon which they attempt to write."

The age of humbug in salt has not yet passed away, nor will it while this critic has any interest in miserable modes of making it. The Africans make good iron, but is that an evidence of their acquaintance with the best modes of making it? No, and yet they believe their's is the best mode. It is so with any process or manufacture. How much information do the men in general possess who have charge of and make the salt at Syracuse? We happen to know something about some of them personally, and happen to know something about different modes of making salt. The very authority, Prof. Cook, to whom we were referred, proves Howd's salt to be the very best quality of salt made. The salt made by Howd's process, Prof. Cook says, is *remarkably* pure. Now the solar made, and especially the salt made by boiling at Syracuse, no man who knows anything about it could say it was *remarkably* pure, unless he plainly told an untruth. Prof. Cook makes the following remarks about Howd's salt:—

"Some interesting peculiarities in the manufacture of salt have been shown this season by the apparatus of Mr. S. B. Howd, of Syracuse. He takes brine directly from the wells and heats it in closed vessels to the temperature of about 280° without allowing it to boil. (Saturated brine boils at 326° in open vessels.) By this means the impurities are precipitated to an unusual amount, and with proper apparatus are then blown off. The brine thus purified is then forced through valves into the main or steam boiler, there brought to saturation, then it is admitted to open vats or evaporating reservoirs and the salt allowed to form; the further evaporation of the brine being continued by means of the exhaust steam from the engine. The salt made by him is remarkably pure."

Well, it, according to Prof. Cook, the authority to whom this critic refers, an *unusual amount* of *impurities* are precipitated, it follows that the invention of Mr. Howd makes a purer salt than any heretofore made at Syracuse. We have no personal interests to subserve; we welcome every improvement and recommend it. The reference given condemns the critic whose audacity of reference is of a very superior stamp to his candor.

A Good Cement.

I have found gum shellac, dissolved in alcohol, very excellent for joining broken vessels, it makes them nearly as durable as if they were cemented by heat. I have been using, for years, a mortar which was broken and mended in this manner. It was broken in pieces, and could not be then replaced. I applied the gum, and bound the parts firmly together until the cement was perfectly dry. I then put it in use and have continued to use it ever since. C. B. F.

The National Institute at Washington has been presented with the flag that waved over Fitch's first American steamboat in 1789.

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Scientific American

NEW-YORK, JULY 17, 1852.

Sewing Machines.

In 1847, when we first noticed the Sewing Machine of E. B. Howe, Jr., of Cambridge, Mass., we had a number of communications on the subject, afterwards, from persons wishing to know where Mr. Howe resided, many of them having written to Cambridge, but got no answer. We did the same, but received no answer, and concluded that Mr. Howe had removed his place of residence, which, we believe, was correct. It would have been well for Mr. Howe had he given publicity to his invention at that time, and had it illustrated in our columns. Like every invention of a useful nature, which we have noticed, our inventors took the hint and commenced inventing sewing machines for themselves. Since that time we have illustrated no less than seven sewing machines in the columns of the Scientific American. The first was on page 145, Vol. 4; it was Johnson & Morey's, agent, John Lerow. It was not a good machine, as it performed only by the running link stitch, with one thread. On page 153, same volume, we published an engraving of Magnin's French embroidering machine. On page 1 of Vol. 5, was illustrated Le Row & Blodgett's Rotary Sewing Machine; on page 73 Wilson's, and on pag 369 Watson's. (On page 216, same volume, we presented engravings of Lerow & Blodgett's machine improved). On page 58, this Vol., Sci. Am., we presented engravings of Singer's Sewing Machine.

Wilson's Sewing Machine embraced the principle of a reciprocating motion, and making a stitch during both the forward and backward stroke. It is now three years since we first noticed the sewing machine of A. B. Wilson, in Vol. 4, page 268; he was then living in Pittsfield, Mass., and he sent us a sample of the work performed by it; it was good, but when we saw his first model, we had no thought that he would ever have been able to bring sewing machines to that state of perfection which he now has. Since then he has obtained two American patents, and we have just completed arrangements—having made the drawings, &c.—to get his latest improved machine patented in all the important kingdoms of Europe. All the machines we have spoken of use two threads, excepting the one specified. We have nothing to say against any one of them, but the Wilson machine is, in our opinion, a great triumph of American genius. It is no larger than a neat small workbox, very portable and convenient, and we have seen fine shirt bosoms and collars stitched by it in a more perfect and accurate manner than any we have ever seen done by hand work. When we first noticed Howe's Sewing Machine, in 1847, there was not a solitary machine of the kind in active operation, in our whole country, if in the world. There are now, we believe, about five hundred in operation, and we have been told by Mr. Wilson that the orders for his machines cannot be supplied fast enough. There are at present a hundred machines about finished at the Company's works—Wheeler, Wilson & Co., Watertown, Conn., and these are all engaged. At present, until the patent is fully secured in Europe, we cannot illustrate nor describe this improved machine, which has received the name of A. B. Wilson's Patent Seaming Lathe, and was patented on the 15th of last June; but we will do so, perhaps, during the latter part of this year.

When we look at the progress made in Sewing Machines, we expect them to create a social revolution, for a good housewife will sew a fine shirt, doing all the seams in fine stitching, by one of Wilson's little machines, in a single hour. The time thus saved to wives, tailors, and seamstresses of every description, is of incalculable importance, for it will allow them to devote their attention to other things, during the time which used to be taken up with dull seam sewing. Young ladies will have more time to devote to ornamental work (it would be better for them all if they did more of it), and families in which there are a number of children, which require a continual stitching, stitching, in making and mending from morning till night, will yet be blessed by the improved Sewing Machine.

The Sewing Machine is but on the threshhold of its career; it is but partially known and applied in our country. Private families know nothing about its use, and shoemakers and saddlers have not yet tasted its benefits. Mr. Wilson informs us that he is about to make one that will sew boots and shoes with a rapidity that will astonish all the sons of St. Crispin. We suppose that, in a few years, we shall all be wearing shirts, coats, boots, and shoes—the whole habiliments of the *genus homo*—stitched and completed by the Sewing Machine. We suppose there are now full 200 sewing machines in operation in this city.

Accidents.

No country in the world has such an unenviable reputation for fatal accidents as ours. Houses falling, steam boilers bursting, railroad trains coming into collision, are among the common news of every-day life. What can be the reason of this? Are our people less reflective, cool, and considerate than all the rest of the world beside? We believe not; our people are a thinking people, and they possess much firmness and presence of mind. What then can be the reason for so many accidents in our country? One reason for the great number of accidents in our country is avarice; and another is the general prevalence of that stupid principle, "what is everybody's business, is nobody's business." A wretched bridge is built, as cheap as possible, by a private company; it is dangerous, to be sure, but this is a free country, and it's nobody's business. A crowd gathers on the said bridge—it falls, and 17 or more persons lose their lives; but then whose business is it? Nobody's. A child is shot by a pistol in the hands of a careless boy, and a physician and colored man are wounded by guns in the hands of others; yet who is to blame? Nobody. All these accidents took place in and near the city of New York, on the 5th inst.

The steamboat St. James, on the same day, while on Lake Ponchartrain, near New Orleans, exploded her boilers, and it is believed that not less than fifty persons lost their lives, as the boat was crowded. Among the number of the killed was Judge Preston, of the Supreme Court of Louisiana, and some of the most prominent citizens of New Orleans. Yet who was to blame? Nobody. These things are a disgrace, not to our country, but to ourselves as a people. There is too much selfishness prevalent, consequently there is a disregard for the safetv of others by those who are seeking after their own interests and their own enjoyments. Houses, bridges, &c., are built cheap; "this will do," says the constructor; "this will do," says the owner; "it is safe enough, and I have paid enough for it." Down comes the structure, or up goes the boiler—scores of lives are lost—coroners' inquests are held—notes of the events are made in the papers—the matter is passed over, and other events of a like nature press on, transpire, and it seems to be nobody's business. Every child seems to stand on tip-toe, with the Declaration of Independence on its tongue's end, and men seem to act, as if they had no duties to perform to their fellow men in the Republic, except to make the most of them. True liberty can only exist where there is a healthy restraint upon all wrong-doing, and surely where wrong deeds go unpunished, no healthy restraint is there. It would be more to the honor, credit, and happiness of our people, if they would go a-head with a little more of the ballast of safety, and a more tender regard for the welfare and general happiness of the whole body of the people.

The Great Balloon.

On Monday, the 5th inst., Mons. Petin, the daring balloonist, was to have made an ascent from Bridgeport, Conn., near the country-seat of the famous P. T. Barnum. A splendid large balloon was made for the occasion, it contained 47,000 cubic feet of gas, and was the admiration of all who saw it, ourselves among the number. We anticipated no little pleasure, along with 15,000 others, in viewing the ascent of such a noble balloon. We were disappointed in our expectations: the balloon, with M. Petin in it, slowly arose from the ground at about 3 P. M., but, unfortunately, it soon came in contact with the wires of the telegraph, which made it rock and sway, when it reeled over against a barn and was torn to pieces. M. Petin fell out when about twelve feet above the ground. The whole multitude were sadly disappointed at the unfortunate result. The ascent of a large balloon always gives us peculiar pleasure; we experience strange sensations at seeing the huge mass rise up grandly, shaking the earth from its feet for a season. From what we have seen of balloons, however, they require, in every instance, the most skillful management to be successful. M. Petin, although a bold aeronaut, has been very uufortunate in his plans since he came to this country. We hope he will be more successful next time.

The Electrical Properties of Flame---Light.

Prof. Buff, of the University of Giessen, has recently published an interesting paper on the electrical properties of flame. He has come to the conclusion that gaseous bodies, which have been rendered conductable by strong heating, are capable of exciting other conductors, solid as well as gaseous, electrically.

Two small strips of platinum were introduced into a glass tube closed at one end; they were separated by an interval of a thin line of air. The air within the tube could not be heated to a degree sufficient to permit the electricity of two of Daniell's cells to pass through it. When the glass became soft by heating, and both pieces of platinum were permitted to touch it, a strong deflection of the needle of the galvanometer was the consequence.

When the strips of platinum were exposed to the direct action of the flame of a spirit lamp, the first notice of the passage of the electricity was obtained, when they were placed at about three inches above its extreme point, and began to show signs of redness. The deflection increased as the strips were lowered in the flame. When the flame was strongest there was a permanent deflection of 70°. The flame current passed always from the hottest platinum strip through the separating interval of gas to the other strip. When the metallic wires or other conductors, connected at one end, are brought into contact with highly heated gas, it formed an electric circuit. One platinum wire was introduced into the obscure centre of the flame of a lamp, and the other wire was brought near the outer surface of the flame, a current of electricity immediately exhibited itself, which passed through the flame from the inner to the exterior wire. By properly connecting a platinum wire, which was dipped into the centre of the flame, with a condensing plate, the latter became charged with negative electricity, and hence Prof. Buff concluded that positive electricity is given off by the outer surface of the flame.

It is our opinion that more discoveries will yet be made respecting flame and light. What do we know of flame, excepting this, "it is the exhibition of a certain action of certain substances, such as carbon, hydrogen, and oxygen?" Flame is an exhibition of these gases in a certain state. This definition is exceedingly unsatisfactory; we are in the dark, yet, respecting one of the most common and simple chemical phenomena. There are hopes of some new discoveries being made, by directing the attention of electricians to this field of investigation. Actinism, and the recent discoveries of the properties of different colored solar rays, are enough to incite philosophers to investigate this subject with great diligence. We have *light*, in the particular excited action of some chemical substance; we do not call light a substance apart and distinct in itself, and yet it has exceedingly peculiar properties, and produces many exceedingly peculiar effects. We are still ignorant of solar light—that is, how it is produced.

An Afflicting Accident.

On Monday evening, the 5th of July, a sad accident took place at Staten Island, near this city. A crowd of those engaged in enjoying the pleasures of that day, collected upon the "fall" of the Ferry Bridge, when it broke, and no less than 17 persons were drowned—they were mostly women and children. The fall of the bridge was a hinged leaf, supported by a chain. The hinge broke first, and then the chain. There should be no fall-bridges—they are worthy of the most rude times of inventive construction. About 12 years ago, a bridge of the same kind fell, precipitating about twenty persons into the basin, at Albany—fourteen were drowned. Such bridges are unsafe, and should not be tolerated. Is there a country on the face of the earth, where there are so many unsafe public structures suffered to exist? Our people are killed by scores every month. The late accident was a culpable one, for what did the women and children know about the safety of the bridge? Nothing:—they should not have been allowed to crowd upon it as they did.

The Climates of Countries.

Although Edinburgh, in Great Britain, is situated ten degress farther north than the city of New York, it has a much warmer climate in winter, and the heat and cold never attain to such extremes. The climate of England is, to the majority of our people, a mystery. The Island is situated between 50° and 55° north latitude, and it has a milder climate than we enjoy in the latitudes of 40 and 45°. The British Isles are situated in the path of warm ocean currents, which flow across the Atlantic and beat upon and circulate around them. The wild Orkney Islands which are situated in 59° 5′, have warmer winters than we have in New York City, which is situated about 17° further south. In the city of Glasgow, the mean temperature in the month of January is 38°, and it has never been below zero but twice in forty years, and then only 3° for two days. In Unst, in the Shetland Isles, in latitude 60° 5 min., the mean temperature in January is 40°. In many places of the United States, ranging from New York to Maine, in latitude 45°, the mean temperature is 6° below zero. Unst is only one degree colder than Constantinople, in January; and no country in Europe, nor the world perhaps, enjoys the mildness of climate peculiar to Great Britain and Ireland. This must have a wonderful effect upon the health and organization of the people. The cause is, as we have stated, generally attributed to the currents of the Gulf Stream; one philosopher, however, attributes the genial warmth to moist breezes from Africa, which come over the Atlantic, crossing the equator. In Russia, Moscow is on the same line with Edinburgh, yet its mean temperature in winter is at least 13° lower. The climate of England is moist and wet. To foreigners, accustomed to clear skies, it is disagreeable. The atmosphere is cloudy in summer, and this is one reason why it is not so warm as in other countries in the same northern latitude. Were it not for the warm ocean currents and the warm breezes, the coasts of England would be ice-bound, and many of the plants which now flourish there as evergreens, would be unknown.

On the northern coast of our Continent—in northern Oregon—the climate is much warmer in winter than in places on the same lines of latitude in our Eastern States. It is believed that currents from the orient flow over the Pacific and wash the Oregon shores, as the Gulf Stream of the Atlantic does the British Isles. During the past winter the thermometer ranged at 17° above zero, and the prairies were green all the time, except when covered by occasional snow storms. The farmer is not compelled, as in the Eastern States, to depend for the winter sustenance of his cattle on hay raised the previous season, his cattle can graze there throughout the whole year, and wild flowers may often be plucked in the months of January and February.

Are Lizards Poisonous?

L. M. Boatner, writing to the Southern Cultivator, says he has examined many snakes and lizards, to know if they were poisonous, and he is satisfied that many snakes are destroyed which are not only harmless but useful. He has examined all sorts of lizards and never found a poisonous one. The large water lizards are also innocent—they are named "lamper eels."

The Exhumed Macadamized Road.

A correspondent writing to us from Somerfield, Pa., inform us that a gentleman from that place has visited the supposed old Macadamized road, at Fairmount. He thinks, from its position. locality, and the shape of the stones, that it could not have been the bed of a stream.

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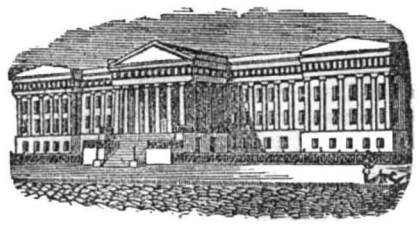


Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JULY 6, 1852.

CENTRE SQUARE—By Nathan Ames, of Sangus, Mass (assignor to Walter Bryent, of Boston, Mass.) I claim, first, the application to an instrument, substantially in the manner set forth, of a geometrical fact, viz., that any circle, touching the sides of a right angle, will be divided into two equal parts, by the line which divides the right angle into two equal parts.

Second, the union of the above with the common "trying square," by means of the bar, as described.

BRIDGES—Abel Bradway & Elijah Valentine, of Monson, Mass.: We claim the combination of the string pieces with the posts, the cross joints, the saddles, the diagonal braces, and the ties of a bridge frame, in such manner that the said string pieces are enabled to move longitudinally under the influence of variations of temperature, or other causes, without injury to themselves or to the parts with which they are combined, substantially as set forth.

CAR SEATS—By John Briggs, of Boston, Mass: I claim a car seat constructed with a double back, which can be folded up or unfolded, by means of the hinged arms, operating as set forth, the two pieces which constitute the back being held together, when open or raised up by the spring lips, substantially as described.

TURNING ENGINES—By J. S. Brown, of Pawtucket, Mass: I claim the clasp, in combination with the slide and saddle, for the purpose of arresting the combined operation of the slide, and pattern, when required.

And I also claim the cylindrical nut, in combination with the standard and tool holder of the slide rest, as described, by which the edge of the tool is brought to the proper position to co-operate with the pattern bar and slide rest, substantially as set forth.

BRIDGES—By J. B. Gridley, of Brooklyn, N.Y. I am aware that diagonal or inclined counter braces, differently arranged, have before been used, such, therefore, irrespective of their disposition and combination, as specified, I do not claim.

But I claim the upper and lower counter braces inclining in reverse directions to one another, for either half of the span, as described, and connecting the double diagonal main brace with the upper and lower chords, united by tie timbers, as specified, producing the important results set forth.

HAND PLANES—Birdsill Holly, of Seneca Falls, N. Y.: I claim, first, the loop on the cap in combination with the plane iron, and the stem of the stock, in the manner substantially as described, to wit, the said loop fitting over, or embracing the plane iron and stem, and allowing the iron to be secured between the cap and the stem, by means of a wedge placed either between the back of the iron and front of the stem, between the front of the iron and the cap, or between the back side of the stem and back part of the loop, the three positions of the wedge forming three different widths of throat, as explained.

Second, providing the cap with shoulders, which, when the cap is placed in the stock of the plane, will fall on suitable resting pieces, provided in or upon the stock, as described.

PATTERNS FOR METAL HUBS, Etc.—By Jasper Johnson, of Geneseo, N Y.: I claim furnishing the usual pattern with a shield, as described, whereby I am enabled more easily to draw the core and prevent chipping and breaking down thereof.

PORTABLE GRAIN MILLS—By Chas. Leavitt, of Quincy, Ill.: I claim forming the inner stationary cone with a cavity (square or otherwise), as described, for the purpose of readily securing the mill on the top of a post or stump, without the use of bolts or wedges, &c., as set forth.

CHURNS—By N.B. Livingston, of Portland, Ind.: I claim the racks, grooves, and pinions, by which the shaft and beaters are caused to traverse the milk or cream, with a compound vertical revolving and reciprocating motion, after the manner and for the purpose described.

RAILROAD CAR BRAKES—By Wm. Montgomery, of Roxbury, Mass.: I do not claim the mere combination of the plates or surfaces, one of which shall be made to rub against the other and constitute a friction brake.

What I claim is my improved brake, composed of three or any greater number of plates or discs, arranged side by side and on a shaft, and having some one or more of them connected with the shaft, so as to be revolved by it, and the others held stationary, so as not to be revolved, and the whole, except one of the outer ones, made to slide endwise on the shaft, and combined with an apparatus or means of pressing them towards and against one another, substantially as specified.

I also claim the combination of the cross rods, with their friction plates and axle, for the purpose of sustaining the axle in case of fracture of it, as specified.

PROCESSES FOR DEFECATING SUGAR—By Robert & Jno. Oxland, of Plymouth, England. Patented in England May 15, 1851: We do not confine ourselves to the details as given, nor to the phosphates mentioned, as others may be substituted.

We claim the use of aluminate of lime, in combination with the super-phosphate of alumina or of lime, with the phosphoric acid, for clarifying cane juice or syrups, as set forth; but we disclaim the use of phosphoric acid, except in combination with the above named bases.

CUTTER HEADS FOR PLANING—By James M. Patton & Wm. F. Fergus, of Philadelphia, Pa.: We claim our improved elliptical reducing and planing instrument, composed of obliquely acting cutters, secured to an elliptical plate in such a manner that the periphery of the said plate will gauge the depth of the action of the cutters, and also serve to hold down the material operated upon, substantially as set forth.

CORDAGE MACHINES—By J. W. Peer, of Schenectady, N. Y.: I claim the use of grooved scrolls and their combination with pinions and grooved rollers and friction rollers, or equivalents for such friction rollers, to create a regular feed motion and equality of strain, whilst laying or forming in a rope, twine, or cordage machine, the whole being constructed in the manner and for the purpose substantially as described.

DOUBLE ACTING DOORS—By W. Rippon, of Providence, R. I.: I claim the manner, substantially as described, of arranging vertical and horizontal adjustable slats, along the front, top, and back edges of the door, for the purpose of allowing the door being opened in either direction, in or out, said slats being made to operate in the manner specified, by means of the door, levers, or their equivalents. and springs, the whole being constructed and arranged in the manner set forth.

MODE OF GRINDING PUPPET VALVES WHILE THE ENGINE IS IN MOTION—By Enos Rogers, of New York City: I claim the valve provided with spindles free to turn on their lifters, in combination with mechanical devices, substantially such as described, which rotate said valves, when down on their seats, but do not act on said valves, when rising or falling; the whole acting substantially in the manner described.

MACHINES FOR RUBBING STONE—By P. E. Royse, of New Albany, Ind., & Ira Reynolds, of Republic, O.: We claim the arrangement of a revolving centre driving-wheel, with a series of stationary crank shaft pinions revolving on their own axes, whether in combination with the cranks or stationary pins, so constructed and arranged upon a radial line as to give the arms and rubbers a rotary or compound elliptical rotary motion, for the purpose set forth.

CUTTERS FOR THREADING WOOD SCREWS—By T J. Sloan, of New York City: I claim the method substantially as specified, of cutting away the mass of the metal to form the thread, by means of a burr cutter, in combination with the method substantially as specified, of finishing and smoothing the thread by means of the chaser, as set forth.

THERMOSTAL FOR REGULATING HEAT—By T. J. Sloan, of New York City: I claim the application of the physical principle of the expansion and contraction of substances by varying degrees of heat to regulate and control a mechanism, applied to operate a damper, register, valve, ventilator, or other equivalent device, which mechanism is actuated or propelled by some independent motor, substantially in the manner specified.

PNEUMATIC SPRING—By Elijah Ware, of Roxbury, Mass.: I claim in an air car spring, in which the piston operates upon the disc of rubber or other elastic substance, which forms one side of the air chamber, the combination of the movable diaphragm, constructed of the pieces F F, &c, operating substantially as described, with the rings placed loosely on the same, as set forth.

PLANING MACHINES—By Wm. Watson, of Chicago, Ill.: I claim a reducing plane, composed of a series of oblique irons, arranged substantially as set forth.

I also claim the combination of the before-claimed reducing cutters with smoothing cutters, arranged substantially as set forth.

RAILROAD CAR BRAKES—By L. F. Thompson, of Charlestown, Mass., & A. G. Bachelder, of Lowell, Mass. (assignors to Henry Tanner, of Buffalo, N. Y.) What is is claimed by us is to so combine the brakes of the two trucks of the operative windlass, or their equivalents, at both ends of the car, by means of the vibrating lever or its equivalent, or mechanism essentially as specified, as to enable the brakeman, by operating either of the windlasses, to simultaneously apply the brakes of both trucks, or bring or force them against their respective wheels, and whether he be at the forward or rear part of the car.

SCREW THREADING MACHINERY—By Cullen Whipple (assignor to the New England Screw Co.) of Providence, R. I. Ante-dated May 15, 1852: I claim a fusee, threading cutter for threading screw blanks, substantially as set forth.

I also claim the arrangement of the cutter and blank, in such manner that the adjacent portions of their peripheries shall move in opposite directions during the operation of threading, so that the metal may be cut from the grooves in the blank from the bottom outwards, to allow the chip to be freely discharged, substantially as set forth.

I also claim the combination of the vibration feeding trough and screw-driver arranged in such manner that when the driver is pushed forward to turn a blank while being threaded, an unthreaded blank may be in the trough upon the driver ready to drop into place before it, the instant it is drawn back, to allow the previous blank to be withdrawn from the cutter.

I also claim the combination of the vibrating arm or its equivalent, to detach the head of a threaded blank from the bit of the screw-driver, with a discharging punch, or its equivalent, to eject the threaded blank from the rest, the two thus operating, ensuring the discharge of one blank before another is presented.

Lastly, I claim a spring, or the equivalent thereof, in the mandrel of the screw-driver, substantially as set forth, to impart to the bit of the screw driver a slight yielding pressure against the head of the blank, until it finds and enters the nick thereof, in combination with the lever and cam, which afterwards apply to the driver a positive motion to keep it engaged with the blank while the latter is turned to be threaded, substantially as described.

RE-ISSUE.

BEDSTEADS—By Nathaniel Colver, of Abington, Mass. Patented April 24, 1849: I lay no claim to a combination of rest bars or boards, spiral or wound wire springs, a sacking and closing frame used to support a cushion or mattress, such a combination having been employed in the manufacture of sofas and other articles of furniture.

I claim the method in which I construct the foundation of the bed or mattress by means of the above described pliances or their equivalents, to wit, the lacing and the clamps and keys or wedges, so as to render the bedstead portable by being taken apart, or enfolded, the one part over the other, or united together, that is to say, I claim the combination of the two frames or halves of a box, each of said frames or halves consisting of a side, two ends, and bottom or slats, supporting wire, springs and a sacking affixed to its side and two ends, and supported on springs or stuffing, as occasion may require, and these halves or parts so united that when together or unfolded, they form but one box or frame supporting or holding fast the sacking at its entire extremity without any separating or supporting partition in the centre, and this union or junction of the two posts is effected by the above described lacing or its equivalent, and clamps, keys, wedges, or their equivalent.

I lay no claim to any one of the elements of the aforesaid or above described combination, when separate from the rest, but intending only to claim the whole as combinations, constituting a bedstead or foundation for a bed or mattress, to which the parts, as above described, or their equivalents may be applied, as aforesaid.

DESIGN.

PARLOR STOVE—By J. D. Green (assignor to Alex. Morrison & T. M. Tibbitts), of Troy, N. Y.

For the Scientific American

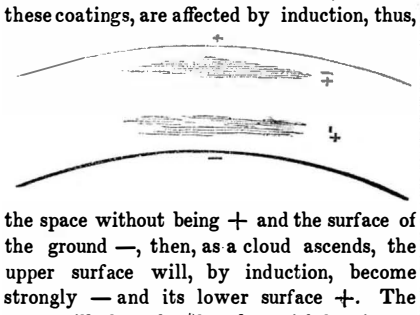
Thunder Storms, Electrical Phenomena.

I received the following letter from Prof. Henry, of the Smithsonian Institution in reply to the account of my aerial voyage from Portsmouth, Ohio, on the 3d inst., and of which I sent you a copy. The hypothesis here laid down, seems to be strongly sustained by the facts, as I witnesed them during that voyage. I would here remark what I forgot to mention in that account, that the electrical discharges in the lower cloud seemed to me, at the time, to be caused the same way that corruscations are caused on the surface of the "Lightning Jar," because the cloud stratum was always broken and imperfect on the upper surface, where these discharges took place —the fluid jumping from one point of cloud to the other. As these facts must be interesting to meteorologists, particularly electricians, and as my account has been published, I will here quote Prof. Henry's letter:—

"SMITHSONIAN INSTITUTE, June 16, 1852.

Dear Sir—Please accept my thanks for the copy of your account of the phenomena observed relative to the thunder storm which you encountered in your last adventurous aerial voyage.

The fact of two clouds, one above the other with a discharge between them, is in accordance with the hypothesis that most of the effects of atmospherical electricity is due to the inductive influence of the electricity of space around the earth and beyond the atmosphere. According to this hypothesis, the atmosphere of our globe is in the condition of a charged Leyden jar, of which the outer coating is the vacuum beyond the air, the inner coating the earth's surface. The clouds in the air, between these coatings, are affected by induction, thus,



the space without being + and the surface of the ground —, then, as a cloud ascends, the upper surface will, by induction, become strongly — and its lower surface +. The same will also take place but with less intensity in the lower cloud, and if the two be sufficiently near, the electricity from the upper will pass to the lower, and this in turn will discharge itself into the earth with loud explosions.

If I could have an opportunity of being with you at starting, with a proper supply of apparatus, I would be pleased to suggest a series of observations. There is a gentleman now connected with the Smithsonian Institute, who would be willing, had he an opportunity, to make an excursion with you for the purpose of observation. Very truly, your obedient servant, JOSEPH HENRY, Sec. S. I.

John Wise, Esq., Aeronaut."

Lancaster, Pa., June 26, 1852.

Sal Ammoniac.

A great deal of the sal ammoniac which comes to this city, (New York) is manufactured in Edinburgh, Scotland, out of the refuse materials of the gas works.

The Edinburgh Gas-works are situated in the valley of the Canongate, which runs from west to east towards the sea. The chemical works, where the products of the gas-works are turned to account, are distant about two miles from the latter, and the gas-works are at a lower level. The Calton Hill is interposed between the two manufactories; and at a former period the gas liquor was carted in barrels to Bonnington on the Water of Leith, where the chemical works are situated. Recently, however, the gas liquor has been lifted over the shoulder of the Calton Hill by an ingenious force-pump, and the difference of level is then sufficient to carry the liquor to Bonnington, which, though higher than the Canongate is lower than the Calton Hill.

The liquor separates into two strata; the lower and heavier being tar; the upper and lighter, an impure aqueous solution of carbonate and hydrosulphuret of ammonia; this is called the ammoniacal liquor. It is the less valuable of the two liquids, and is treated as follows:—To separate it from a portion of tar which always accompanies it, it is subjected to distillation. The distilled liquid is in greater part converted into salammoniac, but a considerable quantity is also manufactured into sulphate of ammonia.

The first step in the sal ammoniac process is, the neutralization of the distilled liquor with hydrochloric acid, which as well as sulphuric acid is made at the works. The neutralized solution is then pumped into large caldrons, where it is concentrated till it has reached the crystallizing point. It is then drawn into large vats or troughs, where, as it cools, it deposits multitudes of small feathery crystals, consisting of rows of minute octohedrons or allied forms attached to each other. In cold weather beautiful large cubes of sal ammoniac are sometimes produced.

The feathery crystals are transferred from the troughs to a drying apparatus, consisting of a shallow oblong open box, made of stone, and heated by a furnace below. The dried salt, in a state of granulation resembling brown sugar or salt, is then mixed with charcoal-powder, which is intended to reduce any oxide of iron present, so as to prevent a brown color being given to the sal ammoniac when raised in vapor. The salt after this treatment is subjected to sublimation. The subliming vessels are shaped exactly like a man's hat, arranged in the furnace with the crown downwards. They are some three feet in depth, and two and a half in diameter. When charged with salt they contain a quantity of material sufficient to demand a week's unceasing application of heat for its sublimation. Each pot is covered by a metal dome or cupola, which is luted on with clay, and has an aperture in the centre through which the salt is allowed to sublime away, for some period after the commencement of the process. This occasions a considerable loss of material, but no other way is known of securing a hard, coherent sublimate. There seems reason to believe that the presence of moisture in the imperfectly dried salt, is the cause of its condensing at the commencement of the process as a spongy mass. At all events a firm cake does not form till after some time. The workmen proceed empirically, and when they judge that a sufficient interval has elapsed, they close the central aperture in the metal dome by a plug of clay, and the sublimation continues for a week. The hemispherical cakes of salammoniac thus produced, are rasped on their outer surfaces to remove any crust or coloring matter, and broken into wedges, which are packed in barrels and sent all over the world.

Extension of a Patent.

On the petition of Robert Newell, of New York City, praying for the extension of a patent, granted to him on the 25th of September, 1838, for an improvement in manifold permutation locks, for seven years from the expiration of said patent, which takes place on the 25th of September, 1852.

It is ordered that the said petition be heard at the Patent Office on Monday the 6th of September, 1852, at 12 o'clock M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOS. EWBANK, Com. of Patents.

Washington, July 7, 1852.

Snake Bites.

The tincture of *lobelia*, given in doses of a table spoonful every few minutes, is said to be a perfect cure for the bite of a snake if taken in time. The person bitten should tie up his leg tight as quick as possible above the wound. It is well known that one or two of our southern correspondents have stated that if a person is bit by a snake, an antidote for it, is at once to chew a good piece of tobacco in the mouth, lay it on the bite and tie up. Brandy is also said to be a cure for the bite, if applied quickly outwardly and inwardly.

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TO CORRESPONDENTS.

E. P., of Tex.—The second half of that $5 bill came safely by Saturday week's mail.

M. D. W., of O.—We obtained a patent on the same invention for B. D. Sanders, of Hollidaysbury Va., in 1849, there would be no hope for you should you apply.

P. L., of B. Island.—You cannot employ a soft bar of iron in the tube, for the mercury will perforate the iron and flow through it. The permeability of metals by mercury is the subject of an interesting paper by Prof. Horsford. It is difficult to make a good working thermometer.

A. J M., of S. C.—You had better keep your back numbers and read them, but if you are not disposed to do so, return them to our office, and we will credit your account with them.

C. L., Jr., of Ct.—We had an order for those back volumes before yours was received.

W. M., of Boston—Have you tried any experiments with the thermometer to produce the effects spoken of? We do not see how it can operate as anticipated, for the increase of temperature is so small in proportion to the increase of steam pressure, that it will not prove to be a sensitive alarm. We do not advise you to make application for a patent until you have tested its merits.

A. R. M., of Ct.—Do you mean the Mitre Bevel? if so, we have seen a number with a sector arc on them.

A. G., of D. C —It is not our province to enter into a personal controversy with D. E., he has a perfect right to his opinion, although wrong. We make out the contents of 1 ball 6 inches dia., and 2 of 5 inches dia., to be 249·9976 cubic inches—a very different sum from that presented to us in both cases.

R. H., of Wis.—You can obtain such information about the Whitelaw & Stirratt Wheel as you solicit, of John Finley, Cold Spring, N. Y.

E. B., of N. H.—The principle upon which you propose to construct a planing machine, is, we think, now employed for cutting out staves and shingles, and its application to board dressing could not be patented. Perhaps you might send us a sketch and description of it for further examination.

I. H. G., of Iowa—We have no disposition to take the case out of the hands of your chosen agents; they will doubtless manage for you the best they can. The Patent Office is about four months behind, we should judge. $1 received and credited.

S. S. B., of N. Y.—Is your gold not too much alloyed? We have never understood there was any difficulty in getting it malleable. Three grains of copper to the ounce of gold, and sometimes ten are employed by the beaters. We shall make inquiries on the subject.

A. B., of Pa.—You can solder any piece of iron on another, by taking a solution of the chloride of tin, and wetting the gun barrel with this on the spot you wish to solder, by a hair pencil, then place on the bar and solder like a piece of tin. Potassium is found in wood, it becomes potash by burning, which is effected by the combination of the oxygen with the metal undergoing combustion.

G. McP., of E. Tenn.—We have no interest in the Sash and Blind Machine, and cannot give the required information; you had better address the advertiser.

S G., of Pa.—Thos. Blanchard, of Boston, Mass., took out a patent for bending wood some two years ago. A. W. Johnston, of St. Georges, Del., has also a patent for the same purpose.

N. F. McC., of Miss.—We think you had better furnish us with sketches and a description of your improvements that we may be able to judge more correctly respecting them. We should think your gin new and patentable.

J. E., of R. I.—We have carefully examined the sketch and description of your alleged improvements in stop-motion for power looms, and think it sufficiently novel to warrant an application for a patent. There are many different devices for the purpose, and it is not so easy to decide fully, still we have seen many but none like yours.

J. N., of Va.- Mr. Hoyt has remitted the 75 cents expense on minerals.

J. N. F., of Washington.—By stepping into the Pateut Office you will find a number of switches operated by the locomotive. If yours is different from any other, a patent can be obtained for it.

C. L. A, of D. C.—We have been told that the principal projector was Mr. St. John, but the project has more than one head connected with it.

G. J. M., of Conn —Overman's Metallurgy is as good a work in one volume as you can get. It is published by Appleton & Co., this city.

G. & S., of Ohio—Your assignments we have forwarded to the Patent Office, and your advertisement you will find under ths proper head. It is not possible to get up good engravings from a daguerreotype plate; you had better send good drawings or a model.

D. T., of Canada—We find you were correct; the mistake occurred with our book-keeper in not properly writing the address.

S. L. H., of Ill.—Your device for converting reciprocating into rotary motion, is one of the oldest inventions for the purpose on record. It is a very inefficient substitute for the crank, and passed to condemnation many years before your time.

Money received on account of Patent Office business or the week ending Saturday, July 10:

C. W. B., of Mass., $25; H. L. F, of Ill., $25; F. B. H., of Ind., $60; J. H. V., of N. Y., $50; C. W. G., of N. Y., $20: A. H., of Ky., $25; C. P. L., of Ga., $20: B. H, of O., $5; E. S., of Ct., $30; J. L. B., of O., $10; J. G, of Mass., $30; N. G. D., of L. I., $35.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the two weeks ending Saturday, July 10:

D. P. G., of Ind.; H. L F., of Ill.; T. H. D., of N. H.: C. W. B., of Mass.; D. P., Jr., of N. Y; N. G. D., of L. I.; B. H., of O.; C. P. L., of Ga.; J. P. P.., of L. I.

An Important Paragraph.

Whenever our friends order numbers they have missed—we always send them if we have them on hand. We make this statement to save time and trouble, to which we are subjected in replying when the numbers called for cannot be supplied.

The Post Office Laws do not allow publishers to enclose receipts; when the paper comes regular subscribers may consider their money as received.

Subscribers ordering books or pamphlets are particularly requested to remit sufficient to pay postage.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all but 4 numbers, price, in sheets, $1.

Of Volume 6, all; price in sheets, $2; bound, $2,75

Of Vol. 7, all back numbers at subscription price.

Patent Claims.

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REJECTION OF LANGDON'S APPLICATION, noticed in the Scientific American July 30, nearly 40 pages. I will send one copy, post-paid, for eight three cent stamps, or 50 copies by Express for $5. The information contained is useful and important to patentees. Address GEO. W. BEARDSLEE, Albany, N. Y. 43 2

SHERRY & BYRAM'S AMERICAN CLOCKS, FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c. REGULATORS FOR JEWELLERS, and other styles, designed for Banks, Offices, etc., also Astronomical Clocks. The undersigned have introduced such improvements in the construction of their clocks, as to be enabled to warrant them the most durable and accurate (highest grade to vary less than two minutes in twelve months), of any others now in use. Glass dials for illumination furnished at short notice. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

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PATENT ALARM WHISTLE.—Indicators for speaking pipes, for the use of hotels, steamships, factories, store-houses, private dwellings, etc. etc. This instrument is intended to supersede the use of the bell, being more simple in its arrangement, more effective in its operation, and much less liable to get out of order, being directly connected with the speaking pipe, it requires no lengthy wires in its use, which are continually getting out of order or breaking. There have been several hundreds of them fitted up in this city and vicinity with the greatest success. They can be attached to pipes, which are already fitted up without domage to buildings, and for much less than the cost of a bell, and warranted to operate. The public are invited to call and examine them at the factory of the patentees.

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LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $28—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.
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TO STEAM ENGINE BUILDERS, OWNERS, and Engineers.—The subscriber having taken the agency of Aschroft's Pressure Gauges, would recommend their adoption to those interested. They have but lately been introduced into this country, but have been applied to many of our first-class river and ocean steamers, and on several rail roads, on all of which from their simplicity, accuracy, and non-liability to derangement, they have given the utmost satisfaction. CHAS. H. COPELAND, Consulting Engineer, 64 Broadway, N. Y. 43 5*

BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 23tf

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WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Bridgeport, Ct.; or WM. WOOD, Westport; Ct., All letters will be promptly attended to. 22tf

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JOHN W. GRIFFITHS—Ship Builder and Marine Architect, 658 Fourth st., N. Y., furnishes models and draughts of all description of vessels, with the computation of stability, capacity, displacement, and necessary amount of impulsion. Propelling power located and proportionably adapted to the form of the vessel, whether sailing or steaming. Mr. G. also superintends the construction of vessels, and may be consulted upon all subjects pertaining to the various departments of the science or practice of ship building. Draughts forwarded by letter to all parts of the world, and to any desired scale; all letters must be post-paid. 27 18*

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PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 lbs., price $600. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 39 26*

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NEW HAVEN MANUFACTURING COMPANY, Tool Builders, New Haven, Conn., (successors to Scranton & Parshley) have now on hand $25,000 worth of Machinist's Tools, consisting of power planers, to plane from 5 to 12 feet; slide lathes from 6 to 18 feet long; 3 size hand lathes, with or without shears; counter shafts, to fit all sizes and kinds of universal chuck gear cutting engines; drill presses, index plates, bolt cutters, and 3 size slide rests. The Co are also manufacturing steam engines. All of the above tools are of the best quality, and are for sale at 25 per cent. less than any other tools in the market. Cuts and list of prices can be had by addressing as above, post-paid. Warehouse No. 12 Platt st., New York, S. C. HILLS, Agent N. H Man'g Co. 25tf

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SCIENTIFIC MUSEUM.

Source of the Nutritious Property of Vegetables.

The nourishing property of corn, wheat and other grains is owing to the gluten contained in them. And this gluten consists, in great part, of nitrogen. It is of course an important object with the farmer to increase the proportion of gluten, and that is done by supplying additional nitrogen in the aliment of the plant. Carbonic acid and water are the chief sources of growth. Nitrogen is the principal element constituting the nutritive quality. The atmosphere contains a large quantity of nitrogen. It is not supposed to be taken up by vegetables, however, from the atmosphere, in its simple form, but by combination with hydrogen, in the form of ammonia. By the digestion of the ammonia, the nitrogen is afterward separated in the plant and used to constitute the peculiar product, gluten, to which its nutrition is owing.

Ammonia is produced by the decay of most animal substances. In this way it is that the application of manures is so beneficial to plants; by the supply of ammonia furnished, which being digested in the plant, results in a separation of nitrogen, which enters in the tissues of plants and produces their nutritive quality.

Ammonia is readily absorbed by water, and the rain and dew become impregnated with it, and it is thus administered to vegetables in small quantities. This may be sufficient for their existence and ordinary growth. But a greater supply of ammonia is necessary to some plants on account of their peculiar economy. This is the case with all plants containing much gluten. And this substance may be greatly increased by a liberal supply of manures from which ammonia is more abundantly provided.

Chemistry and Medicine.

A distinguished medical gentleman told us, the other day, that he would not give that, (snapping his finger) for all the benefit that chemistry had ever bestowed on practical medicine. And he was nearly right; for, though it is one of the most interesting and useful of the sciences in general, and has done some good to medicine, it has, in this practice, been the innocent instrument of a thousand times more harm than good.—[Botanico Medical Recorder.

[The distinguished medical gentleman spoken of above must have been an exceedingly ignorant one. The physician who is ignorant of chemistry cannot move a single step out of the circle of a few receipts which many women practice upon with far more success than men. For example, if a person be troubled with an acidulous stomach, your physician, who is ignorant of chemistry, would not, and could not know what remedy to apply, while the chemist would prescribe weak lime-water, or the bicarbonate of soda. In the discovery of antidotes for poisons, have the chemical labors of Taylor and Christisson done nothing for practical medicine? The distinguished medical gentleman above might snap his fingers as long as he lived, and say what he pleased against the value of such chemical labors, but he would only expose his own ignorance and want of good sense. No man can be a good physician and be ignorant of chemistry.

A Botanical Curiosity.

Messrs. Editors—In the midst of a dense forest, on the declivity of a hill, in this county, stands an elm sapling, three inches in diameter, around which entwines a vine, called poison vine, or poison oak, in the following order: it springs up on the south side, and passes straight up about eighteen inches, then it makes one revolution from the sun, or to the left, then it turns its course, and makes two revolutions with the sun, or to the right, then turns and makes one revolution from the sun, again turns and revolves once with the sun, then turns and revolves twice from the sun. Thus it makes three revolutions with the sun, and four from it in passing to the height of 12 feet. The vine is about the size of a man's little finger, and is two or three years old. The sapling stands on the north side of a large tree, up which, and on the side adjacent to the sapling, at the distance of two feet, apart, runs the parent vine, the small one seems to be a sprout, from the root of the large one.

Will some of the savans in Gotham, or some of your learned correspondents explain this mystery? B. W. White.

Giles county, Tenn., 1852.

[Mr. White has sent us some specimens of the blossoms of the yam vine, which are rare sights, and possess peculiar interest to us.

(For the Scientific American.)

Electric Batteries.

Your paper, No. 26, contained an extract from an article by Prof. Page, in the March number of Silliman's Journal, describing two forms of voltaic batteries invented by him in the year 1838; and also stating that I had adopted the same forms in some of my experiments, and that I thought very highly of the improvement. In the succeeding number of your paper I denied the identity of the apparatus described by Prof. Page, with that which I had exhibited to him in use, and claimed the priority of introduction for James Green, of your city, and myself. I had never published a full description of the apparatus I claimed, because I did not think it of interest to a sufficient number of the readers of a scientific paper, to warrant it to occupy that space which we always expect to contain useful matter; and also because I greatly dislike to be continually blowing my trumpet into the ears of people who care nothing for my music. But as I have claimed the origination of the apparatus I use, I feel a necessity to offer a full description of it; and as the voltaic battery has, within a few years, been introduced in many useful arts, with its application extending daily, I think I may now offer many of your readers useful and interesting information, in a description of my reservoir and voltameter batteries.

These batteries contain the improvements of Smee and Kemp, having a platinized negative plate, a mercurial flood containing bits of zinc, and are excited by dilute sulphuric acid alone. I here wish it distinctly understood that I do not claim to have added Mr. Smee's improvements on to Mr. Kemp's, for that was done by Mr. Smee himself, in his "Odds-and-ends Battery," but I have contrived things by which Mr. Kemp's mercurial flood battery is made of practical use to the manufacturer. This was aimed at by Mr. Smee in his Odds-and-ends Battery, but it is well known to electro-metallurgists that the form proposed by him is of little use.

Fig. 1.

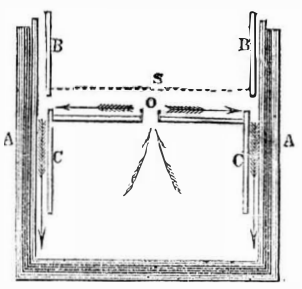

Fig. 1 represents a vertical section of the reservoir battery; A is a water-tight box, made as the electrotypists usually construct their vats, which is by placing one box within another, so as to leave every way an interval of half an inch between them, and pouring melted pitch in the space between the boxes. In the engraving, the inner box is seen projected above the outer box, the dark space between the boxes representing the pitch. C C is a box an inch less in the sides than the interior of the vat; it has no bottom, being a mere platform for supporting the mercury near the top of the acid water, and for guiding the sulphate of zinc to the bottom of the vat, the top is let in the sides about a quarter of an inch below the edge; in the centre of the top is a hole, O, having a raised edge a quarter of an inch higher than the edges of the box; this box is represented more fully in fig. 3, where it is represented with small legs, not seen in fig. 1; the legs should not be longer than two inches, and the whole height of the box such as to bring the amalgam within an inch of the top of the acid water. B B is a frame of such size as to slide easily into the vat, and having a piece of muslin tightly stretched over the bottom; the muslin is first wetted and secured in its place by small tacks: after it is dry it must be cemented in its place with shellac paste, and every part of the frame well varnished by repeated coating with the shellac paste; after drying, the tacks may be taken out.

Fig 2

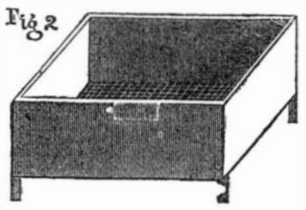

Fig. 2 shows the frame, B B, with the muslin bottom, and also with small feet, which stand on the mercury support when the apparatus is in use. The muslin is designed to prevent any amalgamated particles from coming in contact with the negative plate, and also to serve as a support to the plate, which it admits of being placed very close to the mercury and defends it from touching. A sheet of brass gauze, coated with copper by the electrotype process until the meshes are nearly closed, and then heavily electro-plated, and afterwards platinized, will answer well for the negative plate, but a sheet of silver foil, perforated with small holes as close as they can come together, will answer much better; in making the perforations, the metal must not be removed, but driven up to a bur. All the burs should be on the same side, and the burred side used uppermost.

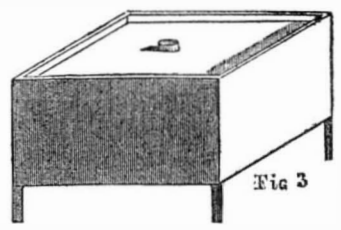

Fig 3

The battery is charged by putting the box, C C, in place, then pouring on the quicksilver, and placing some pieces of zinc in it; the vat may then be filled with a mixture of 3 parts of water and one part of sulphuric acid; the mixture may be made in the vat. The muslin diaphram must not be put in until the mixture is cold.

Contact is made with the positive part of the battery by means of a stout copper wire or ribbon, leading from the mercury up between the sides of the vat, and the frame, B, when it bends over and is made fast to the vat, and terminates in a binding cup. Contact is made with the negative plate by means of a stout wire tipped with silver, or terminates with a silver button, the silver merely resting on the gauze plate. Every part of the connecting wires must be well coated with gum, where the metal may be exposed to the action of the acid.

The utility of the peculiar arrangements described above cannot appear from a mere description of forms, because the uses of the parts do not then appear; the functions of the galvanic battery are of an occult nature. To show the advantages derived from these contrivances, it will be necessary to view the circumstances which led to their introduction.

Shortly after the appearance of the electrotype art, I was engaged with Mr. James Green in endeavoring to make a profitable application of it to manufacturing some parts of mathematical instruments. Success did not attend our labors, for the use of the battery as a tool developed its imperfections, and proved extremely uncertain, troublesome, and expensive. The amalgamated zinc plates used in galvanic batteries are constantly decreasing in quality by the action of the acid, this arises from the absorption of the mercury, which leaves the plate encrusted with a peculiar compound not acted on by the acid. At length the plate decreases in size, leaving a fragment of the plate in which is all the mercury, but in a useless form. As a general thing the mercury and zinc are here lost. Two successive diminutions in the quality and size of the zinc plates, is a diminution in the power of the battery and the loss from residues is almost equal to the zinc consumed in maintaining the battery action. In place of a zinc plate, Mr. Kemp substituted an amalgam of zinc. His battery consisted of a wooden box or trough containing the acid water; in the bottom of the box was placed a flood of mercury, with some fragments of zinc, and above the amalgam, and parallel with it, was placed a copper plate perforated with many holes to permit the gas to escape. In this plan there evidently cannot be any diminution of battery power from decrease in the size of the positive plate neither can there be any residues of zinc or loss of mercury. All electricians have admired the beauty and simplicity of Mr. Kemp's arrangements, yet in practice it has been found ineffective, and has been wholly superseded by the amalgamated plate battery, subsequently introduced by Mr. Sturgeon.

George Mathiot.

[To be Concluded next week.]

How to Pack Firkin Butter.

Mr. Josiah King, before the Allegheny County Agricultural Society, gave a few particulars of the manner in which firkin butter was packed for use in the United States Navy. It was put in small firkins, made, if possible, of bass wood, that having been found preferable as freest from pyroligneous acid. The firkins were then placed in a cask, and brine so strong as to float an egg poured over them. It is this way butter could circumnavigate the globe, and yet be fresh at the end of that time.

LITERARY NOTICES.

The Future of Nations—A Lecture, by Louis Kossuth: revised and corrected by the author. Fowlers & Wells, publishers: New York.—Kossuth, expecting his aged mother and sisters to land on our shores in a state demanding the sympathies of our people, was solicited to deliver a lecture at the Broadway Tabernacle for their benefit, and we must say it was one of his ablest efforts. The lecture abounds in lofty eloquence, and as a specimen of pathos nothing superior—if equal—to it can be produced. It is a most beautiful and highly polished production—the out-pourings of a gifted and powerful mind—and will be largely read.

Supernal Theology—By Owen G. Warren. This very curious publication discourses upon "life among the spheres," and presents a most imaginative and entrancing view of "that undiscovered country." If viewed as a work of highly-wrought fiction, its circulation will afford amusement to the reader. It should be regarded in no other light For sale by Fowlers & Wells, 129 Nassau st., price 25 cts.

The Hydropathic Encyclopedia—By Dr. R. T. Trall; designed as a guide to families and students; 2 vols,; Fowlers & Wells, publishers, Clinton Hall, N. Y. These two volumes contain numerous illustrations and are stored with practical instruction, useful to every one. The whole structure and formation of the body is clearly illustrated and explained in such language as is easily understood by the most unscientific. We have seldom met with a publication possessing more intrinsic merit.

Literature and Art—By Margaret Fuller; 12 mo.: Fowlers & Wells, publishers. The melancholy fate of this gifted woman is doubtless familiar to most of our readers. That she was possessed of much more than ordinary powers, no one presumes to deny, after having read any of her writings. The volume before us contains several essays, which constitute a monument to her literary character, and will doubtless be read with commanding interest.

INVENTORS

Mechanics and Manufacturers

Will find the SCIENTIFIC AMERICAN a journal exactly suited to their wants. It is issued regularly every week in Form suitable for Binding. Each number contains an Official List of PATENT CLAIMS, notices of New Inventions, Chemical and Mechanical; Reviews, proceedings of Scientific Societies; articles upon Engineering, Mining, Architecture, Internal Improvements, Patents, and Patent Laws; Practical Essays upon all subjects connected with the Arts and Sciences. Each Volume covers 416 pages of clearly printed matter, interspersed with from Four to Six Hundred Engravings, and Specifications of Patents. It is the REPERTORY OF AMERICAN INVENTION, and is widely complimented at home and abroad for the soundness of its views. If success is any criterion of its character, the publishers have the satisfaction of believing it the first among the many Scientific Journals in the world.

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